

Applicants respectfully traverse the rejections under 35 U.S.C. §§102 and 103.

The present invention is related to a semiconductor packaging technique.

Particularly, claim 13 recites a method of manufacturing a semiconductor device that, among other things, includes a step of peeling chips off an adhesive tape.

Kobayashi discloses a die bonding apparatus for bonding a semiconductor die onto a bonding surface of a semiconductor lead frame. The apparatus can detect the vertical position of a collet.

Satoh discloses a chip-scale package manufacturing method that includes forming a plurality of pads on an active face of an IC wafer, forming electrodes on the pads, dividing the wafer into pieces, applying protective resin on the active face of the wafer, applying an adhesive member on the active face, grinding an inactive face of the wafer, applying an adhesive member on the inactive face, dicing the protective resin, and removing the adhesive member.

Ohuchi discloses a method of manufacturing a semiconductor device that includes forming protruded electrodes on a plurality of chip areas of a wafer, defining grooves in boundary regions of the chip areas, covering the wafer surface with a resin, polishing the back of the wafer to expose the grooves from the back, and dividing the wafer into pieces.

Riding et al. teaches a method for producing a thin dice from fragile materials that includes making saw cuts in a front surface of a body of fragile material defining the thin dice, applying a support film to the front surface, and grinding the back surface to expose the saw cuts.

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The rejection of claims 13-14 under 35 U.S.C. §102(b) as being anticipated by Kobayashi is respectfully traversed because, in order to properly anticipate Applicants' claimed invention under 35 U.S.C. §102(b), each and every element of the claim in issue must be found, either expressly described or under principles of inherency, in a single prior art reference. Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the . . . claim.” See M.P.E.P. §2131, 8th ed., 2001, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Finally, “[t]he elements must be arranged as required by the claim.” M.P.E.P. §2131, 8th ed., 2001, p. 2100-69. Applicants submit that Kobayashi does not disclose each and every element of the present invention as recited in claim 13.

Independent claim 13 recites, among other things, a step of peeling a chip off an adhesive tape that includes “thrusting the chip using pins from a back side of the adhesive tape with the adhesive tape between the chip and the pins, and keeping the pins at a peak position for an amount of time to facilitate peeling the chip off the adhesive tape, wherein the pins do not pierce the adhesive tape”.

However, Kobayashi only discloses the movements of collet 12. See Kobayashi, col. 8, line 27- col. 10, line 12. In regard to the push-up needles 31, which the Examiner alleges to correspond to Applicants' claimed pins, Applicants submit that, besides that “the push-up needles 31 are moved upward” (col. 8, lines 47-49), Kobayashi does not disclose any other movement thereof in its disclosure or claims whatsoever. In other words, Kobayashi does not disclose at least the features of “keeping the pins at a peak

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position for an amount of time to facilitate peeling the chip off the adhesive tape" and that "the pins do not pierce the tape", as recited in claim 13.

In view of these deficiencies of Kobayashi, Applicants respectfully request that the rejection of claim 13 under 35 U.S.C. §102(b) be withdrawn, placing claim 13 in an allowable condition.

Claim 14, which depends from independent claim 13, is therefore also allowable at least because of its dependency from an allowable base claim.

The Examiner further combined Kobayashi with Satoh, Ohuchi and Riding et al. to reject claims 15-16 under 35 U.S.C. §103(a). Applicants respectfully traverse this rejection, since a *prima facie* case of obviousness has not been made by the Examiner.

To establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of the these requirements must "be found in the prior art, and not be based on applicant's disclosure." See M.P.E.P. §2143, 8th ed., 2001.

First, as discussed above, Kobayashi fails to teach or suggest all of the steps recited in independent claim 13.

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Additionally, Satoh discloses a manufacturing method of a chip-scale package that includes removing the first, second and third tapes. And in the steps of removing these tapes, Satoh only requires "the first adhering tape 3A . . . is removed" (col. 6, lines 7-8), "the second adhesive tape 3B . . . is removed" (col. 6, lines 26-27), and "the third adhesive tape 3C . . . is removed" (col. 6, lines 41-43). Satoh does not teach or suggest how to remove a chip from an adhesive tape, and therefore, Satoh does not overcome the above-mentioned deficiencies of Kobayashi.

Similarly, neither Ohuchi nor Riding et al. teaches or suggests a method of peeling a chip off an adhesive tape. Both references are related to a wafer dicing method, not a chip pickup method. Obviously, neither of them overcomes the deficiencies of Kobayashi.

Therefore, Kobayashi, combined with any of Satoh, Ohuchi, or Riding et al., fails to teach or suggest each and every element recited in claim 13. Accordingly, no *prima facie* case of obviousness has been made because, in addition to the claimed elements not being disclosed or suggested by the cited references, there is no motivation to combine the references. Finally, the fact that the references teach away from the claimed invention demonstrates that there would be no expectation of success required to sustain a proper obviousness rejection.

Therefore, Applicants respectfully request that the rejection of claims 15-16 under 35 U.S.C. §103(a) be withdrawn.

In view of the foregoing remarks, Applicants respectfully request the reconsideration and reexamination of this application and the timely allowance of the pending claims 13-16.

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Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully Submitted,

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